

Committee in general terms was passed. A committee was appointed to prepare new Articles of Association and By-laws. Under the Companies' Acts the new Articles had to be approved, at an Extraordinary General Meeting called for the purpose, by a three-fourths majority, and if so approved the decision had to be confirmed by a bare majority at a subsequent meeting. The first of these meetings was held on June 18th, 1902. Although by law no amendments could be made, a very free discussion was allowed, at the end of which the resolution in favour of the new Articles was passed by 96 to 28, thus securing the necessary majority, but not with many votes to spare. A minority of 33 would have meant the defeat of the resolution and probable disruption of the Association. At the confirmatory meeting on July 9th, when 146 members were present, the necessary majority was secured and the new Articles of Association came into force. The By-laws could be altered at any time by a simpler procedure.

Since 1902 many changes have been made, most of them dealing with matters of detail, but one of them was of primary importance. In 1907 the Council had resort to the referendum on two questions—namely, the constitution and mode of election of the Central Council, and the question of the appointment of separate Finance and Journal Standing Committees. The Representative Meeting had resolved on a change in the election of the Council—namely, the appointment of twelve members by itself. The Council objected on the ground that such a change would take the management of affairs out of its hands and place it in that of the Representative Meeting. On the referendum the Council was defeated, and the separation of the functions of the two committees was agreed upon, each committee having representatives elected by the Council and by the Representative Body.

## THE BRAIN OF THE EAST AFRICAN NATIVE

Dr. H. L. Gordon, the retiring president of the Kenya Branch of the British Medical Association, in a lecture recently given in Nairobi, made public some remarkable facts concerning the brains of East African natives. For the past two years he has, without assistance from State or other funds, carried out an investigation involving thousands of physical measurements and physiological tests. Some of his observations have already been published in the *Kenya and East African Medical Journal*, and others will appear shortly. Dr. Gordon has found that a low degree of mentality is widely prevalent, constituting what in a European community would be a social danger, and that there are not only remarkable physical differences between the East African and the European, but that there are striking variations in different tribes. Dr. Gordon's work has now been supplemented by that of Dr. F. W. Vint of the Pathological Research Laboratory in Nairobi, on the cranial capacity and the weight of the brain of African natives, and the comparison of these with European and other standards.

The average cranial capacity of the European is 1,490 c.cm., while that of the East African is only 1,310 c.cm. The average weight of the brains is set out in the following table:

Caucasoid (white) ... ..	1,380	grams
Mongoloid (yellow-brown) ... ..	1,300	"
East African ... ..	1,280	"
Negroid ... ..	1,240	"
Australoid ... ..	1,180	"

It is recognized that in Kenya most of the tribes have a mixed origin, and it is interesting to note that the average weight of the brain, while considerably below

that of the white man, is distinctly above that of the negro. It is also probably significant that it is exactly midway between that of the white man and the Australian aborigine.

In the examination of the layers of the frontal cortex the admirable work of Shaw-Bolton of Leeds, which was published in 1914, and which has not, perhaps owing to the war, received due recognition, has been followed. Professor Berry's researches on the same lines, and still later those of the late Professor von Economo on the cyto-architecture of the cortex, have furnished standards of comparison. Woollard's observations on the brain of the Australian aborigine have also been of value in estimating the relative importance of the various layers. Dr. Vint's observations on the frontal cortex may be summarized as follows:

	East African	European
The infragranular layer...	106	100
The granular layer ...	98.7	100
The supragranular layer	92	100

The infragranular layer is held to be the seat of the representation—the physical basis—of the animal instincts, reproduction, self-preservation, etc.; the granular layer that of the perception of sensations; while the supragranular layer is concerned with will, intellect, control, etc. The two latter may be looked upon as the physical basis of mind. In the East African, therefore, animal instincts are provided with 6 per cent. more physical basis than in the European, but the physical basis of "mind" shows a preponderance in favour of the European of 9.3 per cent.

These facts, which are the result of careful measurement, are obviously of importance, but the microscope revealed that there are very evident differences in the cyto-architecture of the frontal cortex. The essential difference is the paucity of the large pyramidal neurons in the East African, and the excess of small primitive type cells. Summarizing the evidence afforded by the microscope, Dr. Gordon stated: "In the first series of brains examined microscopically, only 6 per cent. appeared to approach in *quality* the average of the European brain, and not one was above that average." These observations are not offered as conclusive, but as indicating the need for further inquiry, which, to be of value, must be comprehensive. That there are marked variations in the intellectual stature of different races in East and Central Africa is patent, and it would appear that research might be a guide to the origin of this differentiation. If the research were prolonged sufficiently it might be possible to determine how far environment, educative influences, etc., might overcome inherited characters. One point especially would appear to favour the pursuit of this line of research. Both the cerebral cortex and the epidermis are derived from the same elementary embryonic layer—the epiblast. Ethnologists tell us that the characters of the skin and the hair afford better criteria for the differentiation of the various races of mankind than any other feature. It should therefore not be surprising on embryological grounds to find differences in the characters of the cerebral cortex in different races.

Educational authorities dealing with backward native races cannot afford to neglect the teachings of anthropology and psychology. If it is proved that the physical basis of "mind" in the East African differs from that of the European, it seems quite possible that efforts to educate these backward races on European lines will prove ineffective and possibly disastrous. It has long been recognized among highly civilized races that the educational methods applied to the normal child cannot be applied to the backward and defective.

It is quite obvious that private enterprise is inadequate to continue this research upon comprehensive lines. It is an international matter, which might possibly appeal to the League of Nations. In East and Central Africa the need for guidance is urgent, and help might be obtained for the initial efforts from such bodies as the Carnegie or Rockefeller trusts.

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